Center for Public Health Preparedness
Graduate School of Public Health
University of Pittsburgh

HHS Secretary's Council on Public Health Preparedness
January 23, 2004

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University of Pittsburgh

Preparing Health Professionals

- *Preparing health professionals and organizations to respond to bioterrorism, infectious disease and other public health threats and emergencies*
- One of 19 centers – ASPH, CDC and HHS

CPHP Functions

- Assessment of education and training needs
  - Ex. Public Health Ready (NACCHO) Allentown City Health Bureau
- Advising and supporting state and local decision-makers
  - Pennsylvania Department of Health
  - Allegheny County Health Department
  - Neighborhood Emergency Help Centers
  - Metropolitan Medical Response System (MMRS) Pennsylvania Region 13
  - Collaborations: Pa-Ohio Public Health Training Center at Pitt; Center for Rural Health Practice at Pitt-Bradford; Penn State University Office of Rural Health Policy; School of Public Health at Drexel University; School of Public Health at Ohio State University
- Delivering appropriate education and training programs
  - Pennsylvania Preparedness Leadership Institute
  - Pennsylvania on-line Learning Management System
  - Certificate program in "Public Health Preparedness and Disaster Response" in Graduate School of Public Health
  - Distance education to reach State Health Department and rural areas

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Hospital Capacity:
Bioterrorism Response
"The Pittsburgh Matrix"

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A research study funded by the
Agency for Healthcare Research and Quality
in collaboration with RTI

UPMC Key Capabilities

- **Command and Control Capability**
- Terrorism Response Information Center (TRIC)
- Rapid Bed Capacity Assessment Tool
- Staff contact lists and broadcast technology
- Active ED case surveillance
- Corporate Command Center
- Bridge Teleconferencing
- Community Outreach

- **BT Specific Capabilities**
- HVAC Modifications-Quarantine System
- Personal Protective Equipment
- Infection Control Attire
- Staff training to OSHA standards
- Large volume decontamination
- "Safety Link" Briefings
- Real-Time Outbreak System (RODS)
- Antibiotic Stockpile
- Vaccination Clinic Preparations

UPMC Expenses

$2.8 million to create the capability!

$1 million per year to maintain and drill!

Optimal BT Planning

- Define the BT threat topography
- Assess potential victim load
- Define medical facility capacity
- Identify gaps and critical resources
- Assess the "value" of critical resources

Pittsburgh Matrix Hypotheses

- The primary drivers of survivorship in Bioterrorism response are:
  - <u>Victim load relative to available capacity</u>
  - <u>Timeline of Detection</u>

- Timeline and Capacity-Victim Load combinations can be used to value resources and assess critical gaps within a system

Calculation of Scale

Current Capacity	Surge Capacity	Augmented Capacity	Above all Resources
Capacity - Census	Current + Additional Space-Staff	Surge + Outside Resources	Above Augmented
10	100	1,000	10,000

Hospital Capacity:
The Pittsburgh Matrix

Above all Resources					
Augmented Capacity					
Surge Capacity					
Current Capacity					
	Pre Release	Release	Symptom Occurrence	Illness Occurrence	Deaths/Epidemic

Allswede, MP, Watson SJ., *AHRQ Pittsburgh Matrix, 2002*

Pathogen Rating

Communicability/Quarantine Needs

    0: Non-communicable/No Quarantine   Example Bot Toxin

    1: Blood and Body Fluid/Universal Precautions   Example: HIV Virus

    2: Close Contact/Universal Precautions   Example: Ebola Virus

    3: Airborne/HEPA Filtration*   *Example: Variola Virus

Effectiveness of Medical Treatment

    0: Comfort Measures Only Needed   Example: Salmonella

    1: Highly Effective-Survival Probable   Example: Skin Anthrax

    2: Improved Survival-Survival Improved   Example: Yersinia Pestis

    3. Ineffective-Survival Not Improved*   *Example: Variola Virus

Availability of Medical Treatment

    0: Non-Pharmaceutical Treatment   Example: Clear Liquid Diet

    1: Multiple Available Pharmaceuticals   Example: Ames Strain

    2: Insufficient Local Supply Pharmaceutical Example: Bot Antitoxin

    3: Obscure or Experimental Pharmaceuticals* *Example: Variola Vaccine

Variola

	Pre Release	Release	Symptom Occurrence	Illness Occurrence	Deaths/Epidemic
Above all Resources 10,000		6 (15%)	9 (30%)	9 (30%)	9 (30%)
Augmented Capacity 1,000	2 (1.5%)	5 (10%)	9 (30%)	9 (30%)	9 (30%)
Surge Capacity 100	2 (1.5%)	5 (10%)	9 (27%)	9 (27%)	9 (27%)
Current Capacity 10	2 (1.5%)	5 (10%)	9 (25%)	9 (25%)	9 (25%)

Allswede, MP, Watson SJ.,
AHRQ Pittsburgh Matrix, 2002

Decision-Support Tool

- STEP I: Identify probably pathogen
- STEP II: Calculate Victim Load-Capacity
- STEP III: Locate Matrix "Box"
- STEP IV: Act on Critical Resources and Decisions

Limitations

- Each pathogen must be analyzed individually for most accurate result
- Each hospital must receive good scenario information
  - *This is most difficult in early stages*
- Each hospital must know its calculate capacity and critical resources
- Cost estimates based upon UPMC costs…may be change with civic participation
- Assumes UPMC Health System "Gold Standard"

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